NAVAL SURFACE WARFARE CENTER

CARDEROCK DIVISION

DIVISION MANAGEMENT SYSTEM QUALITY MANUAL

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BACKGROUND INTRODUCTION

The Carderock Division of the Naval Surface Warfare Center ***is a result of the January 1991 merger*** of David Taylor Research Center's Research and Development (R&D) functions that are conducted in Bethesda and Annapolis, MD, and NAVSSES's Test and Evaluation (T&E) and In-Service-Engineering (ISE) functions that are conducted in Philadelphia, PA.

The Carderock Division provides Hull, Mechanical and Electrical (HM&E) engineering excellence to U.S. Navy ships and related private industry from the time the ship is conceived until the time it is decommissioned. The Division provides research and development for the new ship's HM&E systems and equipment; test and evaluation of all new HM&E systems prior to Fleet introduction; and In-Service Engineering support for those systems throughout the life of the ship.

The ***individual*** mission***s of each component*** in the Carderock Division, NSWC, ***have*** melded into a single mission, which is to provide research, development, test and evaluation, fleet support, in-service engineering, and test ranges for surface and undersea vehicle Hull, Mechanical and Electrical (HM&E) systems, and propulsors; provide logistics research and development; and provide support to the Maritime Administration and the Maritime industry.

The Division Directorates are:

- Ship Systems and Programs Directorate (Code 20): This directorate matrix-manages assigned non-machinery related programs, such as ship and hull design.
- Business Directorate (Code 30): This directorate is responsible for developing, implementing and directing a strong business support program to complement the Division's technical mission.
- Hydromechanics Directorate (Code 50): This directorate is responsible for ship and vehicle hydrodynamic analysis and testing.
- Survivability, Structures and Materials Directorate (Code 60): This directorate provides technology in survivability, structures, materials and processes for the design, construction, operation and maintenance of the fleet.
- Signatures Directorate (Code 70): This directorate brings together the acoustic and non-acoustic signatures.
- Machinery Research and Development Directorate (Code 80): This directorate consists of the technical experts in machinery systems research and development.
- Machinery In-Service Engineering Directorate (Code 90): This directorate provides the in-service engineering and test and evaluation expertise and support of various ship propulsion, electrical and machinery systems. This support provides a wide range of services for auxiliaries, submarine antenna and mechanical systems. It also provides program management and system integration for the development, acquisition, introduction and modification of new/modified machinery and equipment and directs Division logistics efforts.

SCOPE OF THE DIVISION MANAGEMENT SYSTEM (DMS) REGISTRATION:

BUSINESS DIRECTORATE:
Code 33: Purchasing and contracting services.

HYDROMECHANICS DIRECTORATE:
Code 52: Resistance and powering predictions for submarines and surface ships; Full scale performance and special trials for validation of hydrodynamic ship design.
Code 56: Evaluation of submarine dynamics; design, development, test and evaluation of submarine maneuvering and control systems.

MACHINERY IN-SERVICE ENGINEERING DIRECTORATE:
Code 91: Full Scale DDG-51 Class machinery research, development, test and evaluation, training, and machinery control software support; Platform/Program management and liaison between NSWCCD-SSES and customers.
Code 94: Management, development and maintenance of Integrated Logistics.
Code 95: In-service engineering Vibration test support; ***Inspection, measuring and*** test equipment calibration; ***Development and maintenance of embedded computer programs in deployed ship machinery systems.***
Code 96: In service engineering support for submarine sail systems and submarine safety certification.

SHIP SYSTEMS ENGINEERING STATION COMMANDING OFFICER'S STAFF
Code 027: Environmental management, compliance, and oversight for NSWCCD-SSES and Navy tenants.

SECTION 0.0: QUALITY POLICY AND OBJECTIVES

0.1 This section states the Quality Policy of the Naval Surface Warfare Center, Carderock Division, and the Quality objectives.

0.2 Quality Policy:

It is the policy of NSWC, Carderock Division, to provide quality research, development, design, and in-service engineering support to the United States Navy and the Maritime Industry. All Division activities will be committed to improving the Navy's capabilities to meet its Mission in a cost-effective manner. To achieve our goals, the Division will measure its performance towards providing quality services and satisfying our customers.

0.3 The quality policy is implemented by:

- Management recognizing the need for specially trained and uniquely qualified personnel to meet Navy and industry specific requirements.
- Documentation of the organization, authority, and interfaces of the various functions ***that serve the customer***.
- ***E***mployees possessing skills in their areas of responsibility.
- Management reviews of the effectiveness of the quality system.
- Audits of quality systems and processes.

0.4 Quality Objectives:

0.4.1 To ***satisfy*** our customers through responsive and efficient internal systems ***that produce quality products and value-added services.***

0.4.2 To improve working relationships within the organization that support responsive and efficient internal systems.

SECTION 1.0: MANAGEMENT RESPONSIBILITY

1.1 This section describes the means by which the Division acknowledges its responsibility for quality by providing a quality policy, establishing management responsibilities, and conducting a quality system review.

1.***2*** The Division's Quality Policy, objectives and commitment to quality are defined in Section 0.0 of this Quality Manual. The policy and means of implementation are communicated to all employees by the publication of the documented system, and by communications on quality matters.

1.***3*** The management organization of the Division defines the lines of responsibility of all critical managers.

1.***4*** Resource ***requirements*** are identified throughout the documented quality system***, and management provides adequate resources for activities that*** include audits ***and*** on-going implementation and management of the quality system.

1.***5*** Management Review of the Division's Quality System is carried out at least annually to ensure the continuing suitability and effectiveness of the system. ***The*** findings ***from*** the external ***and*** internal quality audits, records of the system's performance, and opportunities for improvement are part of this review.

1.***6*** Responsibilities of Key Personnel

1.***6***.1 The Commander and Director are responsible for all operations within the NSWCCD and for defining the responsibility and authority for all whose work in any way affects the quality of the Division's products or services. The Commander ***or designee*** conduct***s*** the management review meetings as defined in Division Quality Procedure 00-0000-012-01.

1.***6***.2 The Division ISO Program Manager (DISOPM) is responsible to the Commander and the Director and is delegated as the Division's Management Representative for quality matters both in-house and external.

a. The DISOPM has authority for implementation and maintenance of the quality system and facilitates the coordination of the Quality System between the Pilot Programs ***and*** within the Division.
b. The DISOPM chairs the ***ISO*** Steering Committee ***as defined in DQP 00-0000-012-02***.
c. When discrepancies between the DISOPM and the Pilot Programs arise with respect to Quality System definition or implementation, the matter will be resolved at the ISO Steering Committee level.
d. If the DISOPM, as the Division's independent Quality System sponsor and advocate, is not satisfied with the resolution at the ISO Steering Committee level, he/she can report the matter to the Executive Steering Board for review and resolution.

1.***6***.3 Directors of the Pilot Programs are responsible to the Commander and the Director of the Division for all operations within their Directorates and for defining the authority of their employees whose work in any way affects the quality of the Directorate's products or services which contributes to the way the Division is perceived by its customers.

1.***6***.4 The Division Commander and Director, the Directors of the Pilot Programs, and the Division ISO Program Manager serve as an Executive Steering Board (ESB) for Division Quality System issues. The ESB is responsible for conducting a Management Review at least once a year to ensure the suitability and effectiveness of the Quality System as it affects those codes within the Division' Quality System.

1.***6***.5 The Pilot Program Department Head (PPDH) is responsible to the Directors of the Pilot Programs ***for*** manag***ing*** the operation and for maintaining the quality system.

a. The PPDH appoints key ***personnel*** as, ***but not limited to the following***; ***Internal Auditors, Document Control Coordinator, Action Request Coordinator and Point of Contact.***

b. ***A***ppointments ***of collateral duty personnel*** are documented by a memorandum.

1.***6***.6 The ISO Steering Committee (ISO SC) consists of the ***DISOPM and PPDHs.*** They are responsible for the implementation of the Division Quality System as it relates to the Pilot Programs, and provide a structured forum to discuss and resolve issues and initiatives that impact inter/intra functional lines. In addition, the ISO SC participates in and supports the Management Review process for the Executive Steering Board ***and their Directorates*** with relevant information and data.

a. The ISO SC members are responsible to meet frequently to review the progress of the Pilot Programs and to review the suitability of the Division Quality System.
b. ***Division Quality Procedure 00-0000-012-02 defines the roles and responsibilities of the ISO SC.***

1.***6***.7 Employees of Pilot Programs are responsible for their assigned processes, and preparation of quality procedures and work instructions.

1.7 Refer to Division Quality Procedure (DQP) 00-0000-012-01 and DQP 00-0000-012-02 for further guidance and record requirements.

SECTION 2.0: QUALITY SYSTEM

2.1 This section outlines the way in which the ***Division's Management System (DMS)*** is ***established, maintained*** and documented for ***ensuring*** the quality of products and services conforms to ***specified requirements. The DMS is designed to comply with ANSI/ASQC Q9001-1994***.

2.***2*** It is the responsibility of the Division's Commander and Division's Director to ensure the ***DMS*** meets management's objectives, and complies with the requirements of ***ANSI/ASQC Q9001-1994***.

2.***3*** The documented ***DMS*** is structured in five tiers.

2.***3***.1 Tier 1, the Division Quality Manual, defines policy, demonstrates commitment, and governs the scope and implementation of the lower levels.

2.***3***.2 Tier 2, the Division Quality Procedures, are Division level process documents which define the approach used. They may be used by the Pilot Programs or supplemented by Pilot Program quality procedures (QPs), Tier 3, as long as defined ***procedures*** comply with the requirements of ***ANSI/ASQC Q9001-1994*** and meet the basic intent of the Division Tier 2 Quality Procedures.

2.***3***.3 Tier 3 quality procedures detail the ***specific pilot program*** processes ***that*** affect the output of Pilot Program activities.

2.***3***.4 Tier 4 procedures are specific work instructions for the Pilot Program activities. These procedures will be developed as needed to meet very specific requirements.

2.***3***.5 Tier 5 procedures are documents and specifications of internal/external origin, which are used by the Pilot Programs.

2.***4 The degree of documentation for DMS procedures is dependent on the methods used, skills needed, and the training acquired by Division employees involved in carrying out the activity.***

2.***5*** Quality Planning

2.***5***.1 The general quality plan for the ***DMS*** is defined and implemented in accordance with this Quality Manual and the Tier 2 Quality Procedures as referenced in Appendix A. The Division gives timely consideration to the following activities in meeting the specified requirements for products, projects and contracts:

a. The preparation of Quality Plans. (Note: The Quality Manual is the general quality plan for the ***DMS***. Project or product quality plans are generated at the Pilot Programs as needed.)
b. The identification and acquisition of any controls, processes, inspection equipment fixtures, total production resources and skills that may be needed to achieve the required quality.
c. Ensuring the compatibility of the design, the production process, installation, servicing, inspection and test procedures and the applicable documentation.
d. The updating, as necessary, of quality control inspection and testing techniques, including the development of new instrumentation.
e. The identification of any measurement requirement involving capability that exceeds the known state of the art in sufficient time for the needed capability to be developed.
f. The identification of suitable verification at appropriate stages in the product realization.
g. The identification of and clarification of standards used for product requirements, including those, which contain a subjective element.
h. The identification and ***control*** of quality records.
i. Pilot Program Quality Procedures may supplement Division Quality ***Procedures*** as long as the defined ***procedure*** compl***ies*** with the requirements of ***ANSI/ASQC Q9001-1994*** and does not change the basic intent of the Division Quality Procedures.

2.6 Refer to DQP 00-0000-022-01 for further guidance.

SECTION 3.0: CONTRACT REVIEW

3.1 This section describes the way in which contracts are reviewed to ensure that the customer's requirements are met.

3.***2*** All contracts are reviewed to assess customer's requirements ***and determine if they*** are adequately defined, documented and understood. The Pilot Programs ensure they have or can obtain the resources needed to meet contract requirements.

3.***3*** Where no written statement of requirements is available for a contract that is received by verbal means, the Pilot Programs ensure that the contract requirements are agreed upon ***and documented*** before their acceptance.

3.***4*** Any conflicts with contract requirements differing from those with their funding are resolved prior to contract acceptance and a record is established of ***all written and verbal changes to the contract.***

3.***5*** Amendments to ***the contract*** are controlled and communicated to all those involved.

3.***6*** A record of the contract review and amendments is documented and maintained.

3.7 Refer to DQP 00-0000-032-01 for further guidance and record requirements.

SECTION 4.0: DESIGN CONTROL

4.1 This section describes the control and verification of product design activity to ensure that specified requirements are met.

4.2 Design and Development Planning: The Pilot Programs prepare plans for each design and development activity, including defined responsibility, and describe or reference these activities. The design and development activities are assigned to qualified personnel equipped with adequate resources. The plans are updated as the design evolves.

4.3 Organizational and Technical Interfaces: Organizational and technical interfaces between different groups that input to the design process are defined and the necessary information documented, transmitted and regularly reviewed.

4.4 Design Input

4.4.1 Designed input requirements relating to the product**,** including applicable statutory and regulatory requirements are identified, documented and their selection reviewed by the Pilot Programs for adequacy. Incomplete, ambiguous, or conflicting requirements are resolved with those responsible for imposing these requirements.

4.4.2 Design input takes into consideration the results of any contract review activities ***as defined in DQP 00-0000-032-01.***

4.5 Design Output

4.5.1 Design output is documented and expressed in terms of requirements that can be verified and validated against design input requirements.

4.5.2 Design output:

a. Meets the design input requirements.
b. Contains or references acceptance criteria.
c. Identifies those characteristics of the design that are crucial to the safe and proper functioning of the product (such as, operating, storage, handling, maintenance***, and*** disposal requirements).
d. Includes a review of design output documents before release.

4.6 Design Review

4.6.1 At appropriate stages of design, formal documented reviews of the design results are planned and conducted. Participants at each design review include representatives of all functions concerned with the design stage being reviewed as well as other specialist personnel, as required.

4.6.2 Records of such reviews are maintained.

4.7 Design Verification

4.7.1 At appropriate stages of design, design verification ***is*** performed to ensure that the design stage output meets the design stage input requirements. The design verification measures are recorded.

4.7.2 In addition to conducting design reviews, design verification may include activities such as the following:

a. Performing alternative calculations.
b. Comparing the new design with a similar proven design, if available.
c. Undertaking tests and demonstrations.
d. Reviewing the design stage documents before release.

4.8 Design Validation

4.8.1 Design validation is performed to ensure that product conforms to defined user needs and/or requirements.

4.8.2 Design validation follows successful design verification.

4.8.3 Validation is normally performed on the final product under defined operating conditions. It may be necessary in earlier stages. Multiple validations may be performed if there are different intended uses.

4.9 Design Changes

4.9.1 All design changes and modifications are identified, documented, reviewed and approved by authorized personnel before their use. This process is controlled as needed by the Pilot Programs.

4.10 Refer to DQP 00-0000-042-01 and DQP 00-0000-032-01 for further guidance and record requirements.

SECTION 5.0: DOCUMENT AND DATA CONTROL

5.1 This section describes the control of all documents required for achieving product quality and effective operation of the quality management system.

5.2 Documented procedures are established and maintained to control all documents and data that relate to the requirements of this manual and, to the extent applicable, documents of external origin such as standards and customer drawings.

5.***3*** All documents are reviewed and approved prior to use. Appropriate documents are available at locations where they are intended to be used. Obsolete documents are removed from points of issue and use. Any obsolete documents retained for legal and/or knowledge preservation purposes are identified.

5.***4*** Document changes are reviewed and authorized by the same authority that issued the original document. Revised portions of document are distributed and obsolete documents are removed. A list of documents ***identifying the current revision status*** is maintained, identifying the current revision status of documents and are readily available to preclude the use of invalid and/or obsolete documents.

5.***4.1*** The changes in a document ***are*** identified where practicable. This may be done with bold ***italicized*** text, attachments, or as defined by the Pilot Programs.

5.***5*** The Division Quality Manual and Division Quality Procedures are controlled by the Division ISO Program Manager.

5.***6*** The PPDH or designee controls the Pilot Programs' documentation and data**.**

5.***7*** Master lists are used to track ***the*** revision level and ***Controlled Distribution Lists are used to facilitate*** the distribution of ***DMS*** documentation.

5.***8*** Documents and data may be in the form of hard copy or electronic ***media***.

5.9 Refer to the following DQPs for further guidance: 00-0000-052-01, 00-0000-052-02, 00-0000-052-03, 00-0000-052-04, 00-0000-052-05 and record requirements.

SECTION 6.0: PURCHASING

6.1 This section describes the way in which suppliers of products and services are approved, purchasing documents are reviewed and verification of purchased product by customers is provided.

6.***2*** The Supply Department (Code 33) is the approved and directed supplier of purchasing services, except where otherwise authorized by regulation and determined to be in the best interest of the U.S. Navy. The Purchasing Department implements Tier 2 procedures to comply with the ***intent*** of ***ANSI/ASQC Q9001-1994.***

6.***3 The Supply Department performs DMS purchasing***.

6.***4*** Evaluation of Contractors

6.***4***.1 The sub-contractors will be evaluated and selected on the basis of their ability to meet sub-contract requirements including quality system and quality assurance requirements.

6.***4***.2 The extent of control exercised by Division Purchasing over contractors is defined.

6.***4***.3 The control is dependent upon:

a. Type of product
b. Impact of contracted product
c. Quality of final product
d. Government regulations
e. Quality audit reports and/or quality records of contractors' previously demonstrated capability and performance, where applicable

6.***5*** Quality records are established and maintained for all contractors.

6.***6*** Procurement (Purchasing) Data

6.***6***.1 Procurement documents contain data clearly describing the product ordered, including where applicable:

a. The type, class, grade, or other precise identification.
b. The title or other positive identification, applicable issues of specifications, drawings, process requirements, inspection instructions and other relevant technical data including requirements for approval or qualification of product, procedures, process equipment and personnel.
c. The title, number, and issue of the quality system standard to be applied.

6.***6***.2 Procurement documents are reviewed and approved for adequacy of specified requirements prior to release.

6.***7*** Verification of Purchased Product

6.***7***.1 Where the Pilot Programs verify purchased product at the contractor's premises, the Pilot Programs specify verification arrangements and the method of product release in the procurement document.

6.8 DQP 00-0000-062-01 et. al provides further guidance and record requirements.

SECTION 7.0: CONTROL OF CUSTOMER SUPPLIED PRODUCT

7.1 This section describes the ***actions required to ensure that customer supplied products are verified, stored, and maintained to prevent deterioration or loss.***

7.2 The conditions of handling and use of customer supplied product are defined in the contract or by other documented specifications.

7.3 Any customer supplied product that becomes nonconforming is segregated, recorded as nonconforming in accordance with DQP 00-0000-132-01 and reported to the customer.

7.***4*** If a product is lost, damaged, or is otherwise unsuitable for use, it is recorded and reported to the customer through the applicable nonconforming product or corrective action procedure.

7.5 Refer to DQP 00-0000-072-01 and DQP 00-0000-132-01 for further guidance and record requirements.

SECTION 8.0: PRODUCT IDENTIFICATION AND TRACEABILITY

8.1 This section describes the actions required to ***ensure*** effective compliance to product identification and traceability requirements.

8.***2*** The Pilot Program Department Head (PPDH) or designee ***defines the product(s) produced by their Pilot Program in the appropriate quality procedure and/or work instruction.***

8.***3*** Where appropriate, documented procedures are established and maintained for identifying the product by suitable means from receipt and during all stages of production, delivery and installation.

8.***4*** Those purchased and in-house manufactured materials intended for incorporation into finished products that require identification are assigned an identification number.

8.***5*** The Pilot Programs are responsible for the determination of traceability requirements, when traceability is a specified requirement. This identification is recorded and maintained.

8.6 Refer to DQP 00-0000-082-01 for further guidance and record requirements.

SECTION 9.0: PROCESS CONTROL

9.1 This section describes the general policies for ***identifying, planning and carrying out under controlled conditions, those processes that affect the quality of the product being produced.***

9.2 Each pilot program identifies and writes procedures and/or work instructions unique to their requirements. Document control is applied as defined in DQP 00-0000-052-01.

9.3 Controlled conditions shall include the following:

9.3.1 Documented work instructions defining the manner of production, installation, and servicing.

9.3.2 Use of suitable production and installation equipment, ***and*** suitable working environment.

9.3.3 Compliance with reference standards/codes, quality plans and/or documented procedures.

9.3.4 Monitoring and control of suitable process and product characteristics during production, installation, and servicing.

9.3.5 The approval of processes and equipment, as appropriate.

9.3.6 Criteria for workmanship are stipulated in the clearest practical manner, e.g., written standards, representative samples or illustrations.

9.3.7 Suitable maintenance of equipment to ensure continuing process quality.

9.4 The Pilot Program Department Head, or designee, is responsible for ensuring that:

9.4.1 Work is initiated upon receipt of an approved work request through contract review ***as specified in DQP 00-0000-032-01 and under controlled conditions as defined in para. 9.3 above.***

9.4.2 Appropriate Pilot Program personnel assigned to the job are qualified by education, training, and experience documented as required by DQP 00-0000-182-01.

9.4.3 Records, if generated by procedures and/or work instructions, are kept and maintained as defined in DQP 00-0000-162-01.

9.4.4 Equipment and conditions are adequately specified and controlled, including any special safety and environmental requirements.

9.5 DQP 00-0000-032-01, DQP 00-0000-052-01, DQP 00-0000-092-01, DQP 00-0000-162-01, DQP 00-0000-182-01 provide further guidance and record requirements.

SECTION 10.0: INSPECTION AND TESTING

10.1 This section ***describes the general policies*** for ***receipt,*** in process and final inspection and testing ***conducted by the Pilot Programs.***

10.2 The Pilot Program Department Head or designee is responsible for establishing and maintaining documented procedures for inspection and testing activities to verify that the specified requirements for product are met. General guidance for the establishment of these documented procedures is defined in DQP 00-0000-102-01.

10.3 Receiving Inspection and Testing

10.3.1 All incoming materials are inspected or otherwise verified as to conforming to specified requirements before being released for incorporation into the Pilot Program's product. This verification is in accordance with the quality plan and/or documented procedures. Consideration is given to the control exercised at the source and documented evidence of quality conformance provided.

10.3.2 All incoming materials released for urgent production purposes are positively identified and recorded in order to permit immediate recall in the event of nonconformance.

10.4 In-process inspection and testing ***are conducted and controlled by t***he Pilot ***Programs in the following ways:***

10.4.1 Inspect the test product as required by documented procedures.

10.4.2 Hold the product until the required inspection and tests have been completed or necessary reports have been received and verified.

10.5 Final inspection and testing ***is*** carr***ied*** out in accordance with documented procedures to complete the evidence of conformance of the finished product to the specified requirements.

10.5.1 The documented procedures for final inspection and testing require that all specified inspection and tests, including those specified either on receipt of product or in process, are carried out and that the results meet specified requirements.

10.5.2 Pilot Program products will not be sent outside the pilot program until all activities specified in the quality plan and or documented procedures have been satisfactorily completed and the associated data and documentation are available and authorized.

10.6 Inspection and Test Records

10.6.1 The Pilot Programs establish and maintain records as needed, and as specified in the Pilot Program procedures or work instructions. These records provide evidence that the product has been inspected and/or tested.

10.6.2 These records show clearly whether the product has passed or failed the inspections and/or tests according to defined acceptance criteria.

10.6.3 Products, received and produced that impact product quality, are subject to inspection and test, as required by the Pilot Program procedures.

10.6.4 A quality product that has been inspected has the inspection and test results recorded, per Pilot Program procedures.

10.6.5 Where the product fails to pass any inspection and/or test, Division Quality Procedure 00-0000-132-01, Control of Nonconforming Product, is applied.

10.7 Records will identify the inspection authority responsible for the release of the product.

10.8 DQP 00-0000-102-01 and DQP 00-0000-132-01 provide further guidance and record requirements.

SECTION 11.0: CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT

11.1 This section describes the way in which adequate inspection, measuring and test equipment ***are*** used to demonstrate conformance to specified requirements and how said equipment are calibrated and maintained.

11.1.2 In accordance with the Navy Metrology and Calibration ***(METCAL)*** Program, the Division ***METCAL*** Program establishes and maintains documented procedures to control, calibrate, and maintain inspection, measuring and test equipment used by all Division Codes or their suppliers to demonstrate conformance to specified requirements. Inspection, measuring and test equipment ***shall be*** used in a manner which ensures that measurement uncertainty is known and is consistent with the required measurement capability.

11.1.3 ***Inspection, measuring and test equipment shall be calibrated*** to prove that they are capable of verifying the acceptability of product prior to ***their*** use during production, installation, ***operation***, or servicing and are ***re-calibrated*** at prescribed intervals. The Division ***METCAL*** Program identifies the extent and frequency of such ***calibrations*** and maintains records as evidence of control.

11.1.4 The Division METCAL Program is responsible for the calibration and control of all inspection, measuring and test equipment throughout the Division.

11.2 Control Procedures*:*

11.2.1 The Division METCAL Program:

11.2.1.1 Reviews the procurement specifications for all inspection, measuring and test equipment to ensure the accuracy and precision necessary for the measurements to be made are correctly identified and to determine supportability.

11.2.1.2 Identifies all inspection, measuring and test equipment including measurement devices that can affect product quality and calibrates and adjusts them at prescribed intervals, or prior to use, against certified equipment having a known valid relationship to internationally or nationally recognized standards. Where no such standards exist, ***documents the basis for calibration***.

11.2.1.3 Defines the process employed for the calibration of inspection, measuring and test equipment including unique identification, calibration procedure, calibration interval, acceptance criteria and the action to be taken when results are unsatisfactory.

11.2.1.4 Ensures inspection, measuring and test equipment ***is*** identified with an appropriate calibration label/tag or approved identification record to show calibration status.

11.2.1.5 Performs all laboratory calibrations of Division inspection, measuring and test equipment.

11.2.1.6 Ensures calibrations performed by non-Division ***METCAL*** Program personnel are in compliance with the Division ***METCAL*** Program requirements.

11.2.1.7 Ensures that the applicable Division Code is informed immediately in the event that any of ***the Code's*** equipment is found to be out of tolerance during calibration. Verifies that the applicable Code assesses and documents the impact of the out of tolerance on the validity of previous inspections and tests. Maintains documentation in the calibration file.

11.2.1.8 Maintains ***all required*** calibration records for inspection, measuring and test equipment.

11.2.1.9 Ensures that the handling, preservation and storage of inspection, measuring and test equipment ***are*** such that the accuracy and fitness for use ***are*** maintained.

11.2.1.10 Maintains the ***Navy*** certification of Division Calibration Laboratories and ***METCAL Program*** personnel.

11.3 DQP 00-0000-112-01 provides further guidance and record requirements.

SECTION 12.0: INSPECTION AND TEST STATUS

12.1 This section describes ***the requirements*** involved in the inspection and test of ***a*** product ***produced by*** the Pilot Programs.

12.2 The inspection and test status of a product is identified by suitable means, which indicate the conformance or nonconformance of a product with regard to inspection and tests performed.

12.3 The identification of inspection and test status is maintained, as defined in the quality plan and/or documented procedures throughout production, installation, and servicing of the product to ensure that only a product that has passed the required inspections and tests is dispatched, used or installed.

12.4 If a product fails a test, the product is dispositioned as specified in Division Quality Procedure 00-0000-132-01, Control of Non-Conforming Product.

12.5 DQP 00-0000-122-01 and DQP 00-0000-132-01 provide further guidance and record requirements.

SECTION 13.0: CONTROL OF NONCONFORMING PRODUCT

13.1 This section describes the means taken to ensure that nonconforming product is properly controlled including in-house product and customer returns***.***

13.2 The responsibility for review and authority for the disposition of nonconforming product is assigned in accordance with Division Quality Procedure 00-0000-132-01. This procedure provides for identification, documentation, evaluation, and segregation, ***when practical***, disposition of nonconforming product ***and for notification to the functions concerned. A product that does not conform to specified requirements is prevented from unintended use or installation.***

13.***3*** The following dispositions are used for nonconforming items:

13.***3.1*** Use-as-is (with documented customer concurrence when requested by project or contract)

13.***3.2*** Reject/Scrap

13.***3.3*** Rework (re-inspection required)

13.***3.4*** Re-graded for alternative applications

13.***4*** Where required by contract, the proposed use or repair of product that does not conform to specified requirements is reported for concession to the customer or the customer's representative. The description of nonconformity ***and repair*** that has been accepted is recorded to denote the actual condition. The nonconformity is reported on a NCP Report ***Form*** (Form 00-0000-132-01A) ***or a similar form that contains all of the required information.***

13.***5*** Repaired and reworked products are reinspected in accordance with approved procedures.

13.6 DQP 00-0000-132-01 provides further guidance and record requirements.

SECTION 14.0: CORRECTIVE AND PREVENTIVE ACTION

14.1 This section describes the way in which corrective and preventive actions are implemented. ***A***nyone involved with the ***DMS*** who sees the need for corrective or preventive actions is responsible for reporting the problem by using the Corrective and Preventive Action Procedure 00-0000-142-01.

14.2 The Corrective action procedure includes:

14.2.1 The effective handling of customer complaints and reports of product nonconformities.

14.2.2 Investigating the root cause of nonconformities relating to product, process, and quality system recording the results of the investigation.

14.2.3 Determining the corrective action needed to eliminate the cause of nonconformities.

14.2.4 Applying controls to ensure that corrective action is taken and that it is effective.

14.***3*** The Preventive action procedure includes:

14.***3.1*** The use of appropriate sources of information such as processes and work operations which affect product and/or service quality, concessions, audit results, quality records, service reports and customer complaints to detect, analyze and eliminate potential causes of nonconformities.

14.***3.2*** Determining the steps needed to deal with any problems requiring preventive action.

14.***3.3*** Initiating preventive action and applying controls to ensure that it is effective.

14.***3***.4 Ensuring that relevant information on actions taken including changes to procedures is submitted for management review.

14.***4*** Records

14.***4***.1 Changes, resulting from corrective and preventive actions, are recorded in documented procedures and implemented.

14.***4***.2 Records of corrective and preventive actions are maintained and recorded on a C/PAR Form 00-0000-142-01A.

14.5 DQP 00-0000-142-01 provides further instructions and record requirements.

SECTION 15.0: HANDLING, STORAGE, PACKAGING, PRESERVATION, AND DELIVERY

15.1 This section describes the way in which Pilot Programs ***establish and maintain documented procedures for*** handling, storage, packaging, ***preservation,*** and delivery ***of product.***

15.2 Handling

15.2.1 The product may be handled by a variety of means ***that are appropriate to the nature*** and design of the product. Procedures are established and maintained by the Pilot Programs to ensure the continued maintenance of product quality, safety and service.

15.3 Storage

15.3.1 Documented procedures are established and maintained by the Pilot Programs for designating storage areas or stock rooms to prevent damage or deterioration of product, pending use or delivery. Appropriate methods for authorizing receipt and the shipping to and from such areas are stipulated.

15.3.2 The condition of ***a*** product in storage is assessed at appropriate intervals, in order to detect deterioration.

15.4 Packaging

15.4.1 Documented procedures are established and maintained ***by*** the Pilot Programs to control packing, packaging, and marking processes to the extent necessary to ensure conformance of the product to specified requirements.

15.5 Preservation

15.5.1 Documented procedures for preservation and segregation of product are established and maintained at the Pilot Programs when such product is under the Pilot Program's control.

15.6 Delivery

15.6.1 Documented procedures are established and maintained by the Pilot Programs for the protection of the quality of product after final inspection and test. Where contractually specified, this protection is extended to include delivery to destination.

15.7 DQP 00-0000-152-01 provides further guidance.

SECTION 16.0: CONTROL OF QUALITY RECORDS

16.1 This section ensures that all documents recording quality related activities are adequately maintained and stored. It applies to those documents that demonstrate the achievement of the required quality and verifies operation of the quality management system.

16.2 The Division ISO Program Manager, or designee, maintains the Division records and master list ***of Tier 1 and 2 documentation.***

16.***3*** The Pilot Program Department Head, or designee, maintain the Pilot Program records and master list ***of Tier 3, 4, 5 documentation.***

16.***4 DQP 00-0000-162-01*** establish***es the procedure*** for identification, collection, indexing, access, filing, storage, maintenance, and disposition of quality records.

16.***5*** Quality records are maintained to demonstrate conformance to specified requirements and the effective operation of the ***DMS***. Contractor quality records are an element of this data***, where appropriate***.

16.***6*** Quality records are stored and maintained to ensure that they are ***legible***, readily retrievable, ***and*** in a suitable environment to prevent deterioration, damage, or loss.

16.***7*** Obsolete records are disposed of as seen fit by the appropriate manager who is responsible for the records. Responsibility for records is documented in appropriate correspondence and/or procedures/work instructions.

16.***8*** When contractually agreed to ***and*** upon request, records will be made available for review to the customer or their representative.

16.***9*** Records are maintained ***as*** specified in the procedure producing the record ***or as specified on a designated quality records list.***

16.***10*** Records may be in the form of hard copy media or they may be electronic or other media.

16.***11 DQP 00-0000-162-01 provides further guidance.***

SECTION 17.0: INTERNAL QUALITY AUDITS

17.1 This section describes the methods for verifying compliance with planned arrangements and to determine the effectiveness of the DMS.

17.2 Internal quality audits are scheduled on the basis of the status and importance of the activity to be audited and shall be carried out by personnel independent of those having direct responsibility for the activity being audited.

17.***3*** The results of the audits are recorded and brought to the attention of the personnel having responsibility in the area audited. The management personnel responsible for the audited area ensures timely corrective action on the deficiencies found during the audit.

17.***4*** The ***audits and*** follow-up action***s are carried out in accordance with ANSI/ASQC Q9001-1994. A record of implementation and effectiveness of the corrective action taken are part of the follow-up audit activities.***

17.5 DQP 00-0000-172-01 provides further guidance and record requirements.

SECTION 18.0: TRAINING

18.1 This section describes the way in which training requirements are identified ***and*** implemented, ***for all personnel performing activities affecting quality.***

18.2 Personnel performing specific assigned tasks are qualified on the basis of appropriate education, training, and/or experience, as required.

18.***3*** Records of training are maintained ***as specified in DQP 00-0000-182-01.***

18.4 DQP 00-0000-182-01 provides further guidance and record requirements.

SECTION 19.0: SERVICING

19.1 This section describes the way in which service requirements are defined, implemented, and controlled ***by the DMS.***

19.2 Where servicing is specified in the project or contract, procedures are established and maintained for performing and verifying that servicing meets the specified requirements. Ongoing customer support service is not typically part of a Pilot Program contract.

19.3 Reports of servicing are maintained to ensure specified requirements are met.
19.4 DQP 00-0000-192-01 provides further guidance.

SECTION 20.0: STATISTICAL TECHNIQUES

20.1 This section covers the extent to which statistical techniques are utilized ***by the DMS.***

20.2 Where and when the need is identified, statistical techniques are ***to*** be employed for establishing, controlling, and verifying process capability and product characteristics.

20.3 DQP 00-0000-202-01 provides further guidance.

APPENDIX A
CROSS REFERENCE MATRIX TO TIER II

CDNSWC QUALITY MANUAL	APPLICABLE DIVISION PROCEDURES
1.0 Management Responsibility	00-0000-012-01, ***et. al***
2.0 Quality System	***00-0000-022-01***
3.0 Contract Review	00-0000-032-01
4.0 Design Control	00-0000-042-01
5.0 Document and Data Control	00-0000-052-01, ***et. al***
6.0 Purchasing	00-0000-062-01, ***et. al***
7.0 Control of Customer Supplied Product	00-0000-072-01
8.0 Product Identification and Traceability	***00-0000-082-01***
9.0 Process Control	***00-0000-092-01***
10.0 Inspection and Testing	***00-0000-102-01***
11.0 Control of Inspection, Measuring ,Test Equipment	00-0000-112-01
12.0 Inspection and Test Status	***00-0000-122-01***
13.0 Control of Nonconforming Product	00-0000-132-01
14.0 Corrective and Preventive Action	00-0000-142-01
15.0 Handling, Storage, Packaging, Preservation, Delivery	00-0000-15-01
16.0 Control of Quality Records	00-0000-162-01
17.0 Internal Quality Audits	00-0000-172-01
18.0 Training	00-0000-182-01
19.0 Servicing	00-0000-192-01
20.0 Statistical Techniques	00-0000-202-01